AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): An apparatus for [determining a physical parameter affecting] use with an optical sensor, said apparatus comprising:

[[a)]] a source [[for]] emitting [[a]] radiation [~~having a narrow linewidth~~] at an emission wavelength [[λ_e]];

a wavelength meter coupled to monitor said emission wavelength;

[[b)]] [[a]] means for varying said emission wavelength coupled to said wavelength meter [[λ_e]];

[[c)]] an optical path [[for]] guiding said radiation to said optical sensor and guiding a response radiation from said optical sensor;

[[d)]] a detector [[for]] generating a response signal to said response radiation; and

[[e)]] an analysis module [~~for fitting~~] which analyzes said response signal and determining therefrom said physical parameter.

Claim 2 (currently amended): The apparatus of claim 1, wherein said source is a [~~narrow linewidth~~] laser.

Claim 3 (currently amended): The apparatus of claim 2, wherein said [~~narrow linewidth~~] laser is [~~a tunable laser~~] selected from the group

consisting of External Cavity Diode lasers, Distributed Bragg Reflector lasers, and fiber lasers.

Claim 4 (currently amended): The apparatus of claim 1, wherein said analysis module [~~comprises a curve fitting module for fitting~~] fits a best fit curve to said response signal.

Claim 5 (original): The apparatus of claim 1, wherein said optical sensor is selected from the group consisting of Bragg Grating and Fabry-Perot elements.

Claim 6 (original): The apparatus of claim 5, wherein said optical path comprises an optical fiber and said Bragg Grating is a Fiber Bragg Grating.

Claim 7 (currently amended): The apparatus of claim 1, wherein said means for varying said emission wavelength [λ_e ~~comprise~~] comprises a laser tuner.

Claim 8 (currently amended): The apparatus of claim 7, wherein said laser tuner comprises a scanner for scanning said emission wavelength [[λ_e]].

Claim 9 (currently amended): The apparatus of claim 7, wherein said laser tuner comprises a sweeper for sweeping said emission wavelength [[λ_e]].

Claim 10 (original): The apparatus of claim 1, wherein said optical path comprises a waveguide.

Claim 11 (currently amended): The apparatus of claim 1, further comprising a tap for tapping said radiation and coupling said radiation

to said [[and a]] wavelength meter for monitoring said emission wavelength [[λ_e]].

Claim 12 (currently amended): A method for determining a physical parameter affecting an optical sensor, said method comprising:

[[a)]] emitting a radiation having [~~a narrow linewidth at~~] an emission wavelength [[λ_e]];

[[b)]] providing an optical path for said radiation to said optical sensor and for a response radiation from said optical sensor;

[[c)]] varying said emission wavelength [[λ_e]];

[[d)]] generating a response signal from said response radiation; and

[[e)]] determining said physical parameter by: [~~from a fitting of said response signal.~~]

detecting peaks in said response signal by applying a threshold level;

identifying a full width half maximum of each peak;

identifying a centroid of each peak from the full width half maximum; and

making a fit to each peak.

Claim 13 (original): The method of claim 12, wherein said optical sensor produces said response radiation by a varying a property of

said radiation, said property being selected from the group consisting of transmittance, reflectance, absorbance and polarization.

Claim 14 (currently amended): The method of claim 12, wherein said emission wavelength [[λ_e]] is varied continuously.

Claim 15 (currently amended): The method of claim 14, wherein said emission wavelength [[λ_e]] is swept.

Claim 16 (currently amended): The method of claim 12, wherein said emission wavelength [[λ_e]] is varied discontinuously.

Claim 17 (currently amended): The method of claim 16, wherein said emission wavelength [[λ_e]] is scanned.

Claim 18 (cancelled): The method of claim 12, wherein said fitting comprises a best curve fit of said response signal.

Claim 19 (cancelled): The method of claim 18, wherein said fitting further comprises an analysis method selected from the group consisting of peak detection, Full Width Half Maximum (FWHM) determination, centroid detection.

Claim 20 (currently amended): The method of claim 12 [[18]], wherein said making a fit comprises making a fit selected from the group consisting of a polynomial fit, a Lorentzian fit and a Gaussian fit.

Claim 21 (original): The method of claim 12, wherein said physical parameter is selected from the group consisting of temperature, strain and pressure.

Claim 22 (currently amended): The method of claim 12, further comprising tapping said radiation and monitoring said emission wavelength [[λ_e]].